## REMARKS

We have carefully considered the Office Action dated April 15, 2008, in which claims 10-31 are allowed, allowable subject matter is found in claims 5-7, 35, 36 and 39, and independent claims 1 and the claims that depend therefrom are rejected over the Lorenz reference in combination with United States Patent Application Publication US2006/00183712 to Medlock or a combination of Lorenz with United States Patent 6,466,612 to Kohli et al., independent claim 32 is rejected over a combination of Underbrink and Medlock, and various dependent claims are rejected over various other references combined with these combinations.

With respect to independent claim 1, we have discussed the Lorenz reference in a prior response and while we disagree that Lorenz teaches a precorrelation filter for the reasons discussed previously, we agree with the Examiner that Lorenz fails to teach accumulation registers associated with code chip ranges that span only a portion of a code chip and produce sums that correspond to the associated code chip ranges. As we discuss below, neither the Medlock reference nor the Kohli reference adds this missing component to Lorenz. Accordingly, neither combination teaches or suggests the invention as set forth in independent claim 1 or the claims that depend therefrom.

The Medlock reference describes a despreading system correlates multiple versions of an input, or received, data sequence that are offset in time from one another by sub-chip delays with a local code or sequence. The respective versions of the data

sequence are supplied to corresponding despreaders 215 along with the local code sequence, and the despreaders operate in a conventional manner to produce correlation values. See, page 3, paragraph 0035. All of the correlation values, that is, the respective despreading results, for two versions of the data sequence are summed and accumulated in a sum and accumulate circuit 225, to produce a corresponding accumulation result. See, page 3, paragraph 0036.

As is conventional, the Medlock system determines if there is a "code match" by comparing the accumulation results generated by the sum and accumulate circuits 225 "against pre-determined threshold value(s)" and analyzing the results, using "code correlation algorithms." See, page 3, paragraph 0037.

The respective despreaders operate in parallel to produce the first, second and so forth despreading results that correspond to the offset versions of the data sequence. The results are summed and accumulated in the corresponding add and accumulate circuits over a predetermined time to produce the accumulation results. See, page 1, paragraphs 0007 and 0008. Thus, the Medlock system, like conventional despreading systems, produces correlation measurements that correspond to a correlation of the associated input data sequence with the local code, and accumulates the measurements to determine a code match.

The current system produces, for a given received PRN code, multiple accumulated values that correspond to multiple ranges **within** a code chip, that is, ranges that span portions of the code chip. There is no such teaching in Medlock. Instead, the Medlock system sums and accumulates all of the correlation measurements produced by

the respective despreaders over a predetermined time, and produces one associated accumulation result for two corresponding versions of the data input sequence.

There is thus no teaching or suggestion in Medlock of the current system's plurality of complex accumulators – each of which corresponds to a range **within** a code chip, to separately accumulate measurements for the respective ranges. Specifically, there is no teaching or suggestion in Medlock, nor does Medlock add to Lorenz the missing teaching of:

> an array of complex accumulation registers that over multiple code chips accumulate measurements that correspond to samples of the received signal, ***the accumulation registers each being associated with a code chip range that spans a portion of a code chip and producing a sum that corresponds to the associated code chip range;***

or

> a code phase decoder that controls the respective complex accumulation registers ***to direct respective measurements to the complex accumulation registers that are associated with the code chip ranges from which the samples are taken***, the code phase decoder decoding values that correspond to the estimated code phase angles of the sample.(emphasis added)

As discussed in the Medlock reference, the sum accumulation circuits 225 operate in parallel, each summing and accumulating the associated despreading results. There is no attempt to determine the code phase of a given the sample and direct the associated measurement to an appropriate accumulation register, rather the Medlock system directs all of the measurements corresponding to the respective offset versions of the input data

sequence in parallel to corresponding sum and accumulation circuits that include all of the measurements in their accumulation results.

Thus, Medlock produces in a conventional manner, for each offset version of the data, correlation measurements, or despread results, that correspond to correlating the local code with the offset version of the data. The sum and accumulation circuits then sum the correlation measurements associated with two offset versions and accumulate the sums to produce the corresponding accumulation results that are used to determine a code match.

The Kohli reference is also cited in combination with Lorenz to add to Lorenz the missing teaching of accumulation registers being associated with code chip ranges that span portions of the code chip. The Kohli system produces many versions of the local code and in a conventional manner makes correlation measurements that correspond to correlating the respective versions of the local code with the received signal. The Kohli system thus performs "massively parallel correlation," to create an expanded capture window to aid in fast reacquisition. See, Col. 12, lines 23-28.

The correlation values corresponding to each delayed version of the local code are summed in summers 84, to produce a set of values that each separately indicate the correlation of the associated delayed version of the local code with the received signal. See, Col. 13, lines 13-20; see also Fig. 4 (dotted lines showing all correlation measurements from the respective delayed versions of the local code are summed in corresponding summers 84). The summing proceeds over n samples of each version of

the code, to add together the correlation measurements and produce for each version a single correlation value.

There is thus no teaching or suggestion in Kohli of the current system's plurality of complex accumulators – each of which corresponds to a range **within** a code chip, to separately accumulate measurements for the respective ranges within the code chip. Specifically, there is no teaching or suggestion in Kohli, nor does Kohli add to Lorenz the missing teaching of:

> an array of complex accumulation registers that over multiple code chips accumulate measurements that correspond to samples of the received signal, ***the accumulation registers each being associated with a code chip range that spans a portion of a code chip and producing a sum that corresponds to the associated code chip range;***

or

> a code phase decoder that controls the respective complex accumulation registers ***to direct respective measurements to the complex accumulation registers that are associated with the code chip ranges from which the samples are taken***, the code phase decoder decoding values that correspond to the estimated code phase angles of the sample.

As discussed in the Kohli reference, the summers 84 operate in parallel, each summing the associated correlation measurements over n samples of the corresponding version of the code. There is no attempt to determine the code phase of a given the sample and direct the associated measurement to an appropriate accumulation register, rather the Kohli system directs all of the measurements corresponding to a delayed version of the local code to the same summer. Thus, Kohli produces in a conventional manner, for each

delayed version of the local code, correlation values that correspond to correlating the received signal with the version of the local code.

With respect to claim 32, the Underbrink system is a despreader that produces a despreading result by multiplying a received signal by a PN code by performing two multiplications per code chip across a PN code cycle, and adding the products to produce a despreading value. All of the multiplications may be done in parallel, with the results added in an adder tree to produce a single value for the PN code cycle. See, page 5, paragraph 0061 et seq. In this way Doppler shifted versions of the PN code may be tested relatively quickly.

As discussed above, the Medlock system uses respective despreaders that operate in parallel to produce the first, second and so forth despreading results that correspond to the offset versions of the data sequence. The results are summed and accumulated in the corresponding add and accumulate circuits over a predetermined time to produce the accumulation results. See, page 1, paragraphs 0007 and 0008. Thus, the Medlock system, like conventional despreading systems, produces correlation measurements that correspond to a correlation of the associated input data sequence with the local code, and accumulates the measurements to determine a code match. Thus Medlock adds to Underbrink the use of parallel despreaders – with the combination teaching a system of parallel despreaders, with each despreader operating by making multiplications over a PN cycle in parallel and adding the products to produce for each despreader one value.

Accordingly, the combination does not teach or suggest the step of

> selectively ***combining measurements into respective ranges that each span a portion of a***

***code chip, the respective ranges being based on estimated code phase angles of the samples.***

as set forth in claim 32 and the claims that depend therefrom.

We do not specifically address the Examiner's rejections of the claims that depend from claims 1 and 32. This should not be construed as acquiescence to the rejections, but as recognition that the rejections are moot based on our remarks regarding the allowability of the independent claims 1 and 32.

In light of the above, we ask that the Examiner reconsider the rejections of claims 1-4, 8, 9, 32-34, 37, 38 and 40 and issue a Notice of Allowance for all pending claims. If, after consideration of the Response the Examiner intends to issue another Office Action, we request that the Examiner contact the undersigned for an interview. The undersigned can be contacted at (617) 951-3045.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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